DE PLANTIS TOXICARIIS E MUNDO NOVO TROPICALE COMMENTATIONES — XXXVIII

ETHNOPHARMACOLOGICAL AND ALKALOIDAL NOTES ON PLANTS OF THE NORTHWEST AMAZON

RICHARD EVANS SCHULTES *
and
ROBERT F. RAFFAUF *

Research on the biodynamic plants of the northwest Amazon, especially that part lying within the borders of Colombia, has continued to add to the large number of plants with biological activity—plants deserving of scientific study for the benefit of mankind.

This series has continued to note the uses of plants as medicines, poisons or narcotics that the Indians of the northwest Amazon have, through millennia of trial and error, discovered to possess some activity on the human or animal body. It is on these plants—rather perhaps than on a random sampling of the 80.000 species in the Amazon Valley—that modern phytochemists and pharmacologists should focus their attention.

With the rapid encroachment and success of acculturation, the folk-knowledge acquired through hundreds of years by aboriginal peoples is rapidly being lost. There is little time to lose, and scientists must come to realize the practical value to us of the Indians' knowledge of the properties of this ambient vegetation.

It is probable that this region of the northwest Amazon has one of the richest ethnopharmacopoeias in tropical America. The region may also be the richest in species of plants of the Amazon Valley, an area slightly larger than the United States.

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* Botanical Museum, Harvard University Oxford Street, Cambridge, Mass. 02138 E.U.A.

An amazingly large number of different tribes inhabit this region, all of them—at least until the last few years—more or less dependent on their local flora for "medicinally" useful plants for treatment of their ills. Their knowledge of the properties of plants is extraordinarily extensive. This knowledge has, until now, been preserved primarily because the area—rivers clogged with endless rapids and waterfalls—has by nature been protected from penetration by "civilized" influences from Brazil, bringing with them the availability of efficient and inexpensive "Western medicine".

With such a rich flora and indigenous population and since most of the species have never been phytochemically investigated, the northwest Amazonian forests offer an unexplored emporium of new chemicals, some of which may be of potential value in our own pharmacopoeias.

The families in the following pages are arranged in accord with the Engler-Prantl system. The genera are listed alphabetically under the family. Most of the voucher specimens are preserved in the Economic Herbarium of Oakes Ames or in the Gray Herbarium (both of Harvard University) and/or in the Herbario Nacional de Colombia in Bogotá.

Much of the ethnopharmacological material cited in this paper was gathered during more than 40 years of field work by one of the authors (R. E. S.) or by his students. Most of the alkaloid tests reported were carried out in the field by the junior author (R. F. R.). We have included pertinent data from this geographical area that has recently appeared in local publications of limited distribution as well as annotations found on herbarium specimens.

The literature sources in the following pages are the following: Glenboski *The Ethnobotany of the Tukuna Indians of Amazonas, Colombia* (Instituto Ciencias Nat., Biblioteca J. J. Triana, Univ. Nac. Col., Bogotá, 1983); von Reis Altschul *Foods from Little-known Plants: Notes in the Harvard University Herbaria* (Harvard Univ. Press, Cambridge, Mass., 1973); von Reis and Lipp: *New Plant Sources for Drugs and Foods from the New York Botanical Garden Herbarium* (1982); La Rotta: *Observaciones Etnobotánicas sobre algunas Especies Utilizadas por la Comunidad Indígena Andoque* (Amazonas, Colombia, Corporación de Araracuara, 1983); T. Uphof *Dictionary of Economic Plants*, (Verlag J. Cramer, Lehre, Germany, 1968).

The preceeding contributions in this series have been published in the *Botanical Museum Leaflets of Harvard University*, the *Journal of Ethnopharmacology*, the *Journal of Psychoactive Drugs*, *Rhodora* and *Lloydia*.

POLYPODIACEAE

Polypodium glaucophyllum *Klotzsch* in Linnaea (1947) 393.

ECUADOR: Provincia Pastaza, río Chicó, village of río Chicó and vicinity. August 1979. *Shemluck et Nees 203.*

According to the collectors, this scandent fern was used formerly where there was no salt; the leaves are very sweet and are employed to flavour monkey meat. The plant is also valued medicinally, used, according to the collectors, "when sick, so blood does not dry up". The local name is *catchipanga.*

PIPERACEAE

Peperomia macrostachya (*Vahl*) *A. Dietrich* var. **nematostachya** (*Link*) *Trelease et Yunker,* Piperaceae N. S. Am. 2 (1950). 661.

COLOMBIA: Comisaría del Vaupés, Mitú. "Hanging epiphyte". September 27, October 20, 1966. *Schultes et Raffauf 24178.*

A Dragendorff alkaloid spot-test gives a negative result for this epiphyte.

Peperomia obtusifolia (*L.*) *A. Dietrich,* Sp. Pl. 1 (1831) 154, fig. 594.

COLOMBIA: Comisaría del Vaupés, río Kuduyarí, Yapobodá. October 4-6, 1951. *Schultes et Cabrera 14270.*

The Kubeo Indians rub the crushed leaves of this piperaceous plant vigorously on rheumatic joints to reduce the pain.

Peperomia pellucida (*L.*) *Humboldt, Bonpland et Kunth,* Nov. Gen. et Sp. 1 (1815) 64.

COLOMBIA: Comisaría del Amazonas, río Loretoyacu. October 20-30, 1945. *Schultes 6622.*

Amongst the Tikuna Indians, leaves of this aromatic epiphyte are crushed and, after soaking in warm water, are poulticed on ulcers and wounds.

Peperomia victoriana *C. De Candolle* in DC., Prodr. 16 (1869) 449.

COLOMBIA: Comisaría del Vaupés, río Vaupés, Lagos de Pasos. February 19, 1944. *Gutiérrez et Schultes 857.*

The natives living in the upper río Vaupés rub the crushed leaves on the forehead to relieve headaches.

MORACEAE

Ficus caballina *Standley* in Field Mus. Nat. Hist. Bot. 13 (1936) 301.

COLOMBIA: Comisaría del Amazonas, río Boia Uassú. November 1945. *Schultes 6817.*

Comisaría del Vaupés, río Naquieni, cerro Monachi, June 1948. *Schultes et López 10065.*

This tall tree has thick white latex which the Tikunas employ as a boneset. The latex "sets" rapidly to a rather hard mass.

Ficus gemina *Ruiz ex Miquel* in Martius, Fl. Bras. 4, pt. 1 (1853) 98.

COLOMBIA: Comisaría del Amazonas, Leticia. "Fruit yellow, red spotted. Latex white. Tree". September 1946. *Schultes 8177.*

Comisaría del Vaupés, río Macaya, Cachivera del Diablo. "Extensive strangler. Bark rough, mottled grey and ashy white or brown with red-brown areas. Latex abundant, thin, white or cream-coloured, rapidly oxidizing to a brownish orange on contact with air. Fruit green-yellow with red spots before ripening, later a pink with darker red spots. Leaves inhabited and eaten by an insect perfectly camouflaged to blend with the dark, glossy upper surface. Grows on sandy, well drained soil but near water". May 1943. *Schultes 5393.*

The Tikunas of the río Loretoyacu call this wild fig *pai-n* and value the latex as a vermifuge. In the Vaupés, the tree is known as *chivecha.* The latex is spread on the skin to relieve itching, a condition due probably to fungal infections.

Ficus glabrata *Humboldt, Bonpland et Kunth* var. **obtusula** *Dugand* in Caldasia 3 (1944) 136.

COLOMBIA: Comisaría del Amazonas, río Loretoyacu. "Enormous tree, 120 feet. Buttress roots. Latex white. October 1946. *Schultes et Black 8443.*

Río Putumayo, between ríos Igara-paraná and Yaguas, Isla Arica. June 20, 1942. *Schultes 3499.*

Comisaría del Putumayo, río Caucaya. May 18, 1942. *Schultes 3788.*

The Tikuna Indians of the río Loretoyacu employ the latex as a vermifuge; they call the tree *po-tá.* It is known locally in spanish as *higuerón.*

Fifus mathewsii *Miquel* in Ann. Mus. Bot. Lugd. Bat. 3 (1867) 298.

COLOMBIA: Comisaría del Amazonas, río Loretoyacu. September 13-15, 1966. *Schultes et Raffauf 24112.*

This wild fig gives an alkaloid-negative result with a Dragendorff reagent spot-test.

BALANOPHORACEAE

Helosis cayennensis (*Sw.*) *Sprengel,* Syst. 3 (1826). 765.

COLOMBIA: Comisaría del Amazonas, río Loretoyacu. November 1944. *Schultes 6197.* Same locality. October 1945. *Schultes 6829.* Trapecio Amazónico between the Amazon and Putumayo Rivers. September 1946. *Schultes 8117.* Río Boia Uassú. October 24, 1946. *Black et Schultes 46-241.* Comisaría del Vaupés, río Apaporis, Raudal de Jirijirimo. March 1951. *Schultes et Cabrera 12091a.*

This saprophytes known in the Leticia area of Colombia as *cajamba.* In the Vaupés of Colombia, the Indians believe that the plant, dried and pulverized, is an excellent styptic.

In the Brazilian Amazon, the juice of the plant is considered to be astringent and styptic [Le Cointe: A Amzonia Brasileira, 3 (1934). 157].

ANNONACEAE

Guatteria duckeana *R. E. Fries* in Acta Hort. Berg. 12 (1939) 468.

COLOMBIA: Comisaría del Vaupés, río Vaupés, Cachivera de Tatú. "Tree, 45 feet. Flowers green". October 10, 1966. *Schultes, Raffauf et Soejarto 24377.*

The Indians living near the rapids of Tatú report that bathing or rubbing with a warm decoction of the leaves is efficaceous in relieving rheumatic pains.

The fresh leaves are alkaloid positive with a Dragendorff spot-test.

Duquetia odorata (*Diels*) *Macbride* in Field Mus. Nat. Hist. Publ. Bot. 4 (1929) 172.

COLOMBIA: Comisaría del Vaupés, río Kuduyarí. "Tree 12 feet. Flowers green-yellow". October 10, 1966. *Schultes, Raffauf et Soejarto 24382.*

The flowers are dried and mixed with chicha (slightly fermented drink made of *Manihot*) to impart an aromatic flavour to the beverage.

A Dragendorff spot-test on fresh leaves and bark indicates that both are very strongly alkaloid-positive.

MYRISTICACEAE

Compsoneura capitellata (*A. DC.*) *Warburg* in Nov. Act. Nat. Cur. 68 (1897) 146.

COLOMBIA: Comisaría del Vaupés, río Apaporis, Soratama. January 31, 1952. *Schultes et Cabrera 15107.*

The Indians in the region of Soratama assert that the roots of this small tree are very poisonous but that no use is being made of them.

Compsoneura debilis (*A. DC.*) *Warburg* in Nov. Act. Nat. Cur. 68 (1897) 144.

COLOMBIA: Comisaría del Vaupés, Río Negro, San Felipe. October 25, 1952. *Schultes, Baker et Cabrera 18018.* Río Vaupés, Yutica. May 14-17, 1953. *Schultes et Cabrera 19374.*

The Desano Indians, who know this small tree as *bee-a-poó-nee,* state that the root is highly toxic. No known use is made of it.

Virola calophylla (*Spr.*) *Warburg* in Nov. Act. Acad. Ley-Carol. 68 (1897) 231.

COLOMBIA: Comisaría del Amazonas, río Loretoyacu. October 1946.

Schultes et Black 8463. Río Caquetá, La Pedrera. May 2, 1952.

Schultes et Cabrera 16831.

Comisaría del Vaupés, río Apaporis, Soratama. August 16, 1951.

Schultes et Cabrera 13587. Same locality. March 26, 1952.

Schultes et Cabrera 16040.

The Yucuna name for this tree is *a-ré-dje*. It is one of the several species of *Virola,* the bark exudate of which is widely appreciated in the Colombian Amazonia in the treatment of fungal infections of the skin.

Virola flexuosa *A. C. Smith* in Brittonia 2 (1936) 151.

COLOMBIA: Comisaría del Vaupés, río Apaporis, Soratama. September 28, 1951. *Schultes et Cabrera 14166.*

The Taiwano Indians of the río Kananarí call this tree *e-ta-pa-ma* and report that the dried and pulverized leaves are an excellent insect repellent.

Virola loretensis *A. C. Smith* in Bull. Torr. Bot. Club 58 (1931) 95.

COLOMBIA: Comisaría del Amazonas, río Loretoyacu. November 1945. *Schultes 6947.*

The Tikuna Indians of the río Loretoyacu apparently do not employ any species of *Virola* in the preparation of an intoxicating snuff or orally ingested "pill". They point out, however, that this is one of the trees employed by the neighbouring Witotos as a source of a narcotic "pill".

Virola melinonii (*Ben.*) *A. C. Smith* in Brittonia 2 (1938) 502.

BRAZIL: Estado do Amazonas, río Negro basin, río Cauaburí. "Small tree. Flowers brownish yellow. No bark resin seen". July 15, 1967. *Schultes 24569.*

A Dragendorff spot-test for alkaloids on the fresh leaves gives a negative result.

Virola multinervia *Ducke* in Journ. Wash. Acad. Sci. 24 (1936) 261.

BRAZIL: Estado do Amazonas, Manáos and vicinity, Reserva Ducke. "Tree 45 feet; diameter 8-10 inches. Abundant red resin-like exudate in bark. Leaves beneath and fruits golden-hairy". July 30, 1967. *Schultes 24614.*

The leaves of this tree give a negative result with a Dragendorff spot-test for alkaloids. The twigs, root and fruit, however, were positive with an Ehrlich test.

Virola peruviana (*A. DC.*) *Warburg* in Nov. Acta Acad. Leop. Carol. 68 (1897) 188.

COLOMBIA: Comisaría del Amazonas, río Loretoyacu. September-November 1944. *Schultes 6031.*

The Tikunas of the río Loretoyacu employ the resin-like liquid in the inner bark to treat fungal attacks on the skin.

LAURACEAE

Nectandra acutifolia (*R. et P.*) *Mez* in Jahrb. Bot. Gart. Berl. 5 (1889) 409.

COLOMBIA: Comisaría del Vaupés, río Vaupés, Cachivera de Tatú.

"Tree, 40 feet. Flowers yellow". October 10, 1966. *Schultes, Raffauf et Soejarto 24373.*

The kubeos drink warm a tea prepared from the bark to relieve "excessive fatigue".

With a Dragendorff spot-test, the fresh bark is alkaloid-positive.

Ocotea opifera *Martius*, Reise Bras. 3 (1831). 1128.

COLOMBIA: Comisaría del Vaupés, río Vaupés, Urania. "Tree, 30 feet. Fruits green". October 12, 1966. *Schultes, Raffauf et Soejarto 24421.*

The fruit of this aromatic tree is dried and crushed, and the powder is mixed with coca (*Erythroxylon coca* var. *ipadu*) by the Kubeos. The leaves give an alkaloid-negative test with Dragendorff reagent.

Phoebe sp.

COLOMBIA: Comisaría del Vaupés, río Vaupés, Cachivera de Tatú. "Small tree. Fruit green". October 10, 1966. *Schultes, Raffauf et Soejarto 24374.*

The Kubeos of the Mitú region sprinkle powdered bark in their ceremonial featherwork to preserve it from insect damage.

A Dragendorff alkaloid spot test on this collection gives a positive reaction.

MONIMIACEAE

Siparuna ternata *Perkins* in Engler, Jahrb. 28 (1901) 691.

COLOMBIA: Comisaría del Vaupés, río Vaupés, Cachivera de Tatú. "Small tree". October 10, 1966. *Schultes, Raffauf et Soejarto 24375.*

This plant is alkaloid-negative with a Dragendorff spot-test on fresh material of the leaves.

Amongst the Kubeos, a decoction of the leaves and fruits is ingested to relieve chest congestion due to colds.

LEGUMINOSAE

Elizabetha princeps *Schomburgk* ex Bentham in Hooker, Journ. Bot. 2 (1840) 92.

BRAZIL: Estado do Amazonas, río Negro Basin, río Cauaburí. "Bark burnt for ashes to mix with Virola snuff. Tree 40 feet. In forest". July 17, 1967. *Schultes 24578.*

The bark and petioles of this tree give a negative test for alkaloids with Dragendorff reagent.

The Waika Indians call this tree *a-ma'*. The ashes of its bark are mixed with their hallucinogenic snuff known as *nyakwana or epena* [Schultes et Holmstedt: Rhodora 70 (1968). 113-160].

Inga nobilis *Willdenow,* Enum. Hort. Berol. (1809) 1047.

COLOMBIA: Comisaría del Vaupés, río Apaporis, Jinogojé. "Bush. Flowers white". June 5, 1952. *Schultes et Cabrera 16604.* Same locality. June 20, 1952. *Schultes et Cabrera 16767.* The Makunas call this bush *me-ne-ra.*

Inga setifera *De Candolle,* Prodr. 2 (1925) 432, 615.

COLOMBIA: Comisaría del Amazonas, Leticia. "Flowers yellow. Fruit pulp edible. Leaves very glossy above". September 20, 1945. *Schultes 6543.*

Comisaría del Vaupés, río Apaporis, Raudal de Jirijirimo. "Small tree. Flowers bright yellow". September 16, 1951. *Schultes et Cabrera 14024.* Río Kuduyarí, lower part. "Cultivated. Flowers yellow". October 16, 1952. *Schultes et Cabrera 17860.*

This small tree is locally known in the Leticia area as *Chimbillo.* Its name in Tikuna is *kau-re* and the Kubeos of the río Kuduyarí call it *koo-me-ne.*

Inga stenoptera *Bentham* in Hooker, Journ. Bot. 2 (1840) 143.

COLOMBIA: Comisaría del Amazonas, río Loretoyacu. March 1946. *Schultes 7136.*

Comisaría del Vaupés, río Apaporis, Jinogojé. "Flowers white. Bush". August 28, 1952. *Schultes et Cabrera 17029.* Río Vaupés, Mitú. November 13, 1952. *Schultes et Cabrera 18419.*

The Makú Indians of the río Piraparaná know this plant as *meen.*

Stylosanthes guianensis (*Aubl.*) *Swartz* in Vet. Acad. Handl. Stockh. (1789) 296.

COLOMBIA: Comisaría del Vaupés, río Kubiyú, Savannah Kañendá. "Herb. Flowers orange; stem covered with hairs. Profusely glandular". September 27, October 20, 1966. *Schultes, Raffauf et Soejarto 24293.*

This leguminous herb is alkaloid-negative with a spot-test on fresh material with Dragendorff reagent.

Swartzia conferta *Spruce ex Bentham* in Martius, Fl. Bras. 15, pt. 2 (1870) 20.

COLOMBIA: Comisaría del Vaupés, Cachivera de Jirijirimo. "Small bush, 6 feet. Fruit yellow". *Schultes et Cabrera 12452.* Río Kananarí, Cerro Isibukuri. January 23, 1952. *Schultes et Cabrera 15027.* Cachivera de Tatú. "Small treelet. Fruit red". October 10, 1966. *Schultes, Raffauf et Soejarto 24371.*

Fresh leaves are alkaloid-positive when subjected to a Dragendorff spot-test. The Tukanos employ a decoction of the stems to treat diarrhoeia, but the remedy must be taken with care as it is said to be toxic.

ERYTHROXYLACEAE

Erythroxylon cataractarum *Spr. ex Peyritsch* in Martius, Fl. Bras. 12, pt. 1 (1878) 149.

COLOMBIA: Comisaría del Vaupés, río Kubiyú, along bank. "Small tree 4 m, tall, leaning over water in inundated area. Leaves yellowish green. Grows only along river. Fruit readily eaten by fish". July 3, 1975. *Zarucchi 1383.* Same locality. July 10, 1975. *Zarucchi 1423.* Río Piraparaná, near Misión de San Miguel. "Tree to 8 m, trunk to 26 cm wide. Flowers cream. Fruits green, ripening red". October 25, 1976. *Davis 151.*

According to *Zarucchi 1383,* this tree, known locally as *coca de pescado* (undoubtedly because the fruit is eaten by fish), is "almost as strong as 'cocaína' " and is "used by people who do not have a coca patch". It is said to be "a very strong, wild coca, one of the wild cocas used prior to the introduction of cultivated varieties; presently the cultivated is preferred because it is not so strong".

Davis reports that the Barasana Indians maintain that this coca can be eaten and that "it was the coca of our fathers".

BURSERACEAE

Hemicrepidospermum cuneifolium *Cuatrecasas* in Webbia 12 (1957) 417.

COLOMBIA: Comisaría del Vaupés, río Apaporis, Soratama. "Small tree. Flowers greenish yellow. Leaves stiff". August 16, 1951. *Schultes et Cabrera 13592.*

The aroma of the dried leaves of this plant is presumed amongst the Taiwano Indians to relieve severe cattarrhal conditions. These Indians know the plant as *ku-ku-ta-ma-tu.*

MELIACEAE

Guarea gomma *Pulle* in Rec. Trav. Bot. Neerl. 6 (1909) 271.

COLOMBIA: Comisaría del Amazonas, Interior of Trapecio Amazónico. October 1945. *Schultes 6763.* Río Boia Uuassú. "Small tree. Flowers white".

November 1945. *Schultes 6791.* Río Loretoyacu. November 3, 1946. *Schultes et Black 46-303.*

The leaves of *Guarea gomma* are considered by the Tikunas to be very astringent and are employed in the form of a tea to arrest diarrhoeia. The roots are said to be toxic.

Guarea macrophylla *Vahl,* Eclog. Am. 3 (1807) 8.

COLOMBIA: Comisaría del Caquetá, río Caquetá, Tres Esquinas, *Little et Little 9653.*

The bark of *Guarea macrophylla* is employed locally in decoction as a purgative.

MALPIGHIACEAE

Burdachia prismatocarpa *Martius ex Jussieu* var. **argutivenosa** *Cuatrecasas* in Webbia 13 (1958) 636.

COLOMBIA: Comisaría del Vaupés, río Vaupés, Mitú. November 17, 1939. *Cuatrecasas 7248.*

The Kubeo name of this plant is reported to be *va-da-keé-ma-mae.* The leaves are said to be "medicinal", but their specific use is not reported.

Byrsonima ciliata *Cuatrecasas* in Webbia 13 (1958) 623.

COLOMBIA: Comisaría del Vaupés, río Kuduyarí, Yapobodá. "Bush 18 feet. Flowers white. Leaves coriaceous, obovate, apically indented. Calyx green; petals white; stamens red". October 5, 1951. *Schultes et Cabrera 14217.*

The Kubeo Indians of the río Vaupés consider a tea of the dried leaves of *Byrsonima ciliata* to be effective as a diarrhoetic.

EUPHORBIACEAE

Alchornea castaneifolia *A. Jussieu,* Tent. Euphorb. (1824) 42.

COLOMBIA: Comisaría del Amazonas, río Loretoyacu. October 1946.

Schultes et Black 8439. Same locality. November 1946.

Schultes et Black 8635. Same locality. January 8, 1973.

Glenboski C-202.

The Tikuna Indians make a decoction of the scrapings of the bark to treat diarrhoeia. According to the collector (*Glenboski* C-202), one tablespoonful of the tea should be taken before meals. The name of this species amongst the Spanish speaking inhabitants of the region is *Pájaro árbol.*

Alchornea triplinervia (*Spreng*). *Mueller-Argoviensis* in De Candolle, Prodr. 15, pt. 2 (1862) 909.

COLOMBIA: Comisaría del Amazonas, río Karaparaná, El Encanto. May 22-28, 1942. *Schultes 3830.*

The Witotos claim that this plant has anti-diarrhoeic properties. The leaves are occasionally employed for this medicinal purpose.

Mabea nitida *Spruce ex Bentham* in Hooker, Kew Journ. 6 (1854) 367.

COLOMBIA: Comisaría del Vaupés, Mitú. "Tree 20 feet. Fruit rus-coloured". September 27, October 30, 1966. *Schultes et Raffauf 24170.*

Leaf material of this tree is alkaloid-negative with a Dragendorff spot-test.

Micrandra minor *Bentham* in Hooker, Kew Journ. 6 (1854) 372.

BRAZIL: Estado do Amazonas, río Negro basin, río Cauaburí, Carangreijo. "Medium sized tree, by flood bank. Flowers yellow. Latex white. Common name: *arara-seringa*". July 14, 1967. *Schultes 24564.*

With a Dragendorff spot-test for alkaloids, the petioles are positive (questionably so, since latex may interfere with the reaction); the inner bark is weakly positive.

ANACARDIACEAE

Anacardium occidentale *Linnaeus,* Sp. Pl. (1753) 383.

COLOMBIA: Comisaría del Amazonas, Leticia. August 29-31, 1966. *Schultes, Raffauf, Forero et Soejarto 24037.*

The leaves of this common cultivated treelet give a positive alkaloid test with Dragendorff reagent.

BOMBACACEAE

Matisia cordata *Humboldt et Bonpland,* Pl. Aequin. 1 (1808) 9, t. 2.

COLOMBIA: Comisaría del Amazonas, río Loretoyacu. "Tree 60 feet. Flowers yellow. Pulp of fruit edible". September 13-15, 1966. *Schultes et Raffauf 24111.*

A Dragendorff spot-test indicates that this collection is very strongly alkaloid-positive. Inasmuch as the Bombacaceae is not recognized as an alkaloid-rich family, these field results should be followed up with a detailed phytochemical study of this common cultivated fruit tree.

STERCULIACEAE

Theobroma grandiflorum *K. Schumann* in Martius, Fl. Bras. 12, pt. 3 (1886) 76.

COLOMBIA: Comisaría del Amazonas, río Loretoyacu. September 13-15, 1966. *Schultes et Raffauf* 24165.

A Dragendorff alkaloid spot-test on the leaves gives a negative reaction.

Herrania camargoana *R. E. Schultes* in Bot. Mus. Leafl., Harvard Univ. 14 (1950) 120, t. 29, 32.

BRAZIL: Estado do Amazonas, río Negro basin, río Cauaburí. "One slender trunk. Height 20 feet. In flood forest. Fruit brownish red with fleshy pseudospines at junction of ribs and cross ribs". July 16, 1967. *Schultes 24571.*

A Dragendorff reagent spot-test for alkaloids is negative for the stems and petioles.

DILLENIACEAE

Davilla densiflora *Triana et Planchon* in Ann. Sc. Nat., ser. 4, 17 (1862) 18.

COLOMBIA: Comisaría del Amazonas, río Karaparaná, El Encanto. May 22-28, 1942. *Schultes 3853.*

The "juice" of this plant is said to be very caustic. It is noteworthy that the "juice" of *Davilla rugosa* of Brazil is said to "burn the skin", and for this reason the plant is called "fire vine" or *cipó de fogo* in Brazil (von Reis et Lipp, 1982).

Davilla nitida (*Vahl*) *Kubitzaki* in Mitt. Bot. Staatssaml. München 6 (1971) 95.

COLOMBIA: Comisaría del Amazonas, río Loretoyacu. October 1946. *Schultes et Black 8540.* Río Apaporis, Soratama.

"Fruit orange. Shrub". January 26, 1951. *Schultes et Cabrera 12835.*

The Tikuna Indians of the río Loretoyacu use a decoction of the leaves of this abundant shrub to cautarize bleeding wounds. In the río Apaporis, the natives burn the leaves and put the ashes into gashes made by machetes to help staunch the flow of blood and, they say, to hasten the healing process.

Doliocarpus dentatus (*Aubl.*) *Standley* in Journ. Wash. Acad. Sci. 15 (1925) 286, *in obs.*

COLOMBIA: Comisaría del Amazonas, río Igaraparaná, La Chorrera. June 18, 1974. *Sastre 3396.*

Comisaría del Vaupés, río Kuduyarí, Yapobodá. "Low bush. Fruit red. Flowers white". October 5-6, 1951. *Schultes et Cabrera 14361; 14393;* October 31, 1951.

This is the famous *bejuco de agua* ("watervine"). The Kubeo Indians of the río Kuduyarí report that the water from this vine, when taken several times daily for two days, will arrest the after-effects of malaria.

The Witotos of the río Igaraparaná call this plant *jo-bé-o.*

QUIINACEAE

Quiina amazonica *A. C. Smith* in Trop. Woods No. 58 (1939) 30.

COLOMBIA: Comisaría del Amazonas, río Loretoyacu. October 1946. *Schultes 6676.*

The Tikuna Indians of the río Loretoyacu report that they employ a tea of the leaves to "cure" sores of the mouth.

CARYOCARACEAE

Anthodiscus obovatus *Bentham* ex *Wittmack* in Martius, Fl. Bras. 12, pt. 1 (1886) 358.

BRAZIL: Estado do Amazonas, río Xié. "Small tree. Flowers yellow. Leaves coriaceous". November 29, December 7, 1947. *Schultes et López 9226.*

COLOMBIA: Comisaría del Vaupés, río Apaporis, Raudal de Jirijirimo. November 27, 1951. *Schultes et Cabrera 14660.*

The bitter bark of this tree is considered by the Indians of these Brazilian and Colombian localities to be a febrifuge when used in a decoction. The plant is also valued for its ichthyotoxic properties.

Caryocar glabrum (*Aubl.*) *Persoon,* Syn. 2 (1806) 84.

COLOMBIA: Comisaría del Vaupés, río Apaporis, Soratama. "Enormous tree. Flowers yellow; stamens bright red". September 26, 1951. *Schultes et Cabrera 14139.*

The Puinave name for this treelet is *haw*. The seeeds are used, uncooked, as a food. These Indians also consider a tea of the crushed seeds to be medicinally useful in what appears to be an attempt to regulate menstruation.

BIXACEAE

Bixa orellana *Linnaeus,* Sp. Pl. (1753) 512.

COLOMBIA: Comisaría del Amazonas, río Caquetá, Caño Aduche. October 6, 1981. *La Rotta 26.*

Comisaría del Putumayo, Mocoa. December 3-7, 1942. *Schultes et Smith 3002.*

According to *La Rotta 26*, the Andoke Indians call this cultivated tree *acosi*, apparently a variant of the Spanish name *achiote*.

FLACOURTIACEAE

Ryania pyrifera (*L. C. Rich.*) *Uitten et Sleumer* In Pulle, Fl. Surinam 3 (1935) 286.

COLOMBIA: Comisaría del Vaupés, río Vaupés, Raudal de Tatú. "Small tree. Flowers white". October 10, 1966. *Schultes, Raffauf et Soejarto 24387.*

This plant, reported to be an excellent fish-poison, is alkaloid-negative when tested on fresh material with a Dragendorff spot-test.

PASSIFLORACEAE

Passiflora laurifolia *Linnaeus*, Sp. Pl. (1753) 956.

COLOMBIA: Comisaría del Vaupés, río Vaupés, Mitú. Savannah at base of Cerro Mitú. "Extensive vine. Flowers white; staminodes tan; anthers bright yellow". September 27, October 20, 1966. *Schultes, Raffauf et Soejarto 24207.*

The Kubeo Indians state that a decoction of the leaves of this vine can be taken to induce sleep.

MYRTACEAE

Calyptranthus multiflora *Poeppig ex Berg* in Martius, Fl. Bras. 14, pt. 1 (1857) 42.

COLOMBIA: Comisaría del Vaupés, río Apaporis, Soratama. "Small tree. Fruit purple-brown. On flood bank". June 12, 1951.
Schultes et Cabrera 12642.

The fruits are gathered and prepared in the form of a tea to treat a condition leading to abnormally swollen breasts. The tea is administered orally every few hours for two days. This treatment is recommended by the Taiwano Indians, who know the plant as ö-kö-tá-pa.

Calyptranthes paniculata *Ruiz et Pavón,* Fl. Peruv. 4 (1799) t. 424.

COLOMBIA: Comisaría del Vaupés, río Apaporis, Soratama. August 16, 1951. *Schultes et Cabrera 13553.* Same locality. "Small treelet. Fruit red. Common on flood banks". June 17, 1951. *Schultes et Cabrera 12613.*

A tea of the red berries of this treelet is given to women of the Barasana tribe of the río Apaporis to increase the flow of milk from swollen breasts. The native informants say that the tea must be administered with care and in small doses.

Eugenia aff. **biflora** (L.) *De Candolle,* Prodr. 3 (1828) 276.

COLOMBIA: Comisaría del Vaupés, río Kuduyarí, Yapobodá. "Low bush, common on savannah. October 5, 1951. *Schultes et Cabrera 14236.*

The Kubeos report that a wash prepared from the leaves of this plant and introduced into the ear can relieve "pain and throbbing in the ear".

Eugenia aff. **cuspidiflora** *De Candolle,* Prodr. 3 (1828) 279.

COLOMBIA: Comisaría del Vaupés, río Apaporis, Soratama. June 21, 1951. *Schultes et Cabrera 12760.*

The Taiwano Indians living on the río Kananarí call this plant *er-ke-té-pa,* meaning "ear-medicine". It is used in the form of an infusion to relieve pressure from accumulated ear-wax.

Eugenia florida *De Candolle,* Prodr. 3 (1828) 283.

COLOMBIA: Comisaría del Amazonas, río Guacayá. "Bush. Flowers white, fragrant". April 24, 1952. *Schultes et Cabrera 16236.* Río Apaporis, Jinogojé. June 5, 1952. *Schultes et Cabrera 16595.*

The Makuna Indians call this bush *oo-koó.* They drink an infusion of the leaves to relieve "pain in the chest".

Eugenia patrisii Vahl, Eclog. Am. 2 (1807) 35.

COLOMBIA: Comisaría del Vaupés, río Apaporis, Raudal de Jirijirimo. January 21, 1952. *Schultes et Cabrera 14922a.*

A hot tea of the leaves, twigs and fruits of *Eugenia patrisii* is reported by the Barasana Indians to be a valuable remedy for persistent coughs and other respiratory problems.

Marlierea insignis *McVaugh* in Fieldiana Bot. 29 (1956) 177.

COLOMBIA: Comisaría del Vaupés, río Apaporis, Soratama. "Small tree, 35 feet. Fruit golden brown. In flood forest". August 24, 1951. *Schultes et Cabrera 13722.*

The edible fruit of *Marlierea insignis* is valuable in the form of a tea taken as hot as possible for treatment of what appears to be the result of a sinus condition. The tea is said to be snuffed into the nostrils to clear nasal congestion.

Marlierea spruceana *Berg* in Martius, Fl. Bras. 14, pt. 1 (1857) 34.

COLOMBIA: Comisaría del Vaupés, río Apaporis, Soratama. "Small tree. Fruit green, black when ripe, edible. On flood bank". July 18, 1951.

Schultes et Cabrera 12652. Río Kananarí, Cerro Isibukuri, *Schultes et Cabrera 14697.* Río Vaupés, near Mitú. November 13, 1952. *Schultes et Cabrera 18414.*

The Puinaves have two names for this small tree: *dé-der* ("tree of the lapa") and *há-shan.* The Taiwanos of the río Kananarí consider that a hot decoction can "clear the throat of congestion"; their name for the plant is *er-ké-la-té-pa.*

Myrcia salicifolia *De Candolle,* Prodr. (1828) 246.

COLOMBIA: Comisaría del Vaupés, río Apaporis, Raudal de Jirijirimo. "Tree 25-35 feet tall. Fruit red". September 16, 1951. *Schultes et Cabrera 14019.*

The leaves of *Myrcia salicifolia* are considered by the Taiwano Indians to be efficaceous against diarrhoeia when taken dry and mixed with fariña (flour of *Manihot esculenta* Cranz.). A decoction of the leaves is said to be astringent and often emetic when used in excess.

Myrcia splendens *(Sw.) De Candolle,* Prodr. 3 (1828) 244.

COLOMBIA: Comisaría del Vaupés, río Kananarí, Cachivera del Palito. "Small tree. Flowers white". July 25, 1951. *Schultes et Cabrera 13147.* Río Apaporis, Jinogojé. June 5, 1952. *Schultes et Cabrera 16592.*

The bark of this small tree is widely employed to paint *cuyas* (gourds) black. The Puinaves call the plant *ta-we-ká.*

Psidium acutangulum *De Candolle*, Prodr. 3 (1828) 233.

COLOMBIA: Comisaría del Amazonas, río Loretoyacu. November 1946. *Schultes et Black 8630.*

The leaves appear to be very astringent and are valued by the Tikuna Indians to prepare a wash to relieve the pains of hemorrhoids.

Psidium densicomum *Martius ex DeCandolle*, Prodr. 3 (1828) 235.

COLOMBIA: Comisaría del Vaupés, río Apaporis, Raudal de Jirijirimo. January 21, 1952. *Schultes et Cabrera 14947a.*

The fruit of this plant is frequently dried and kept for chewing to relieve "sores of the mouth" amongst Indians in the río Apaporis. It apparently has astringent properties.

Psidium guianense *Persoon*, Syn. 2 (1807) 27.

COLOMBIA: Comisaría del Amazonas, río Loretoyacu. *Glenboski C-241.*

The mature fruit is esteemed by the Tikunas when eaten raw "to lessen diarrhea" (Glenboski, loc. cit. 50).

Trichilia cipo *C. DeCandolle* in Martius, Fl. Bras. 11, pt. 1 (1878) 214.

VENEZUELA: Territorio del Amazonas, río Negro, San Carlos. "Tree 45 feet, 6 inches in diameter. Flower green-white. Bark fissured; hard inner bark red". December 15, 1947. *Schultes et López 9365a.*

The Kuripako Indians of the río Guainía esteem a decoction of the bark as a cure for malaria and other fevers.

Trichilia micrantha *Bentham* in Hooker in Kew Journ. 3 (1851) 369.

COLOMBIA: Comisaría del Vaupés, río Kananarí, Cerro Isibukuri. "Tree up to 50 feet. Flowers white. Fruit dark green". August 4, 1951.

Schultes et Cabrera 13317. Río Apaporis, Jinogojé. June 20, 1952.

Schultes et Cabrera 16782.

The Barasana Indians, who know this tree as yö-kö-nee, employ the smoke of the burning leaves as a treatment for a variety of pulmonary ailments. It is reputedly extremely pungent.

Trichilia pleeana (A. Juss.) *C. De Candolle* in Martius, Fl. Bras. 11, pt. 1 (1870) 215.

COLOMBIA: Comisaría del Amazonas, río Atacuari. "Tree 20 ft. Flowers white". October 24, 1946. *Schultes et Black 8592.*

Comisaría del Vaupés, río Apaporis, Raudal de Jirijirimo. August 12, 1951. *Schultes et Cabrera 13527.*

The Taiwano Indians of the region near the Raudal de Jirijirimo maintain that the bark of this tree is astringent and can be used as a febrifuge in the form of a tea.

Trichilia septentrionalis *C. De Candolle* in Martius, Fl. Bras. 11, pt. 1 (1870) 220.

COLOMBIA: Comisaría del Putumayo, río Uchupayacu. "Tree 30 ft., 20 cm". February 22-23, 1942. *Schultes 3303.*

The Ingano Indians consider that a tea of the leaves of this species is effective against fevers.

Trichilia singularis *C. De Candolle* in Martius, Fl. Bras. 11, pt. 1 (1878) 217.

COLOMBIA: Comisaría del Amazonas, río Loretoyacu. November 1945. *Schultes 6946.*

The Tikuna Indians employ a tea of the leaves of this tree as a febrifuge.

MELASTOMACEAE

Graffenrieda rupestris *Ducke* in Arch. Inst. Bio. Veg. Río Janeiro 2 (1935) 66.

COLOMBIA: Comisaría del Vaupés, Río Apaporis, Raudal de Jirijirimo. November 25, 1951. *Schultes et Cabrera 14560.* Cachivera de Tatú. "Tree, 40 feet. Flowers white, fragrant". October 10, 1966. *Schultes, Raffauf et Soejarto 24381.*

The leaves of *Graffenrieda rupestris* are rubbed on the hands to relieve blisters caused by long paddling. A Dragendorff spot-test on living material indicates that the leaves are alkaloid-negative.

These two collections, the first from Colombia, are the westernmost localities for the species; the type was collected on the Cerro Curicuriarí on the upper río Negro of Brazil near the Colombian frontier.

Loreya acutifolia *O. Berg ex Triana* in Trans. Linn. Soc. 28 (1871) 142.

COLOMBIA: Comisaría del Vaupés, río Vaupés, Urania. "Tree, 60 feet. Flower buds yellow with deep pink top; stamens yellow; flowers showy". October 12, 1966. *Schultes, Raffauf et Soejarto 24417.*

A spot-test for alkaloids with Dragendorff reagent indicates that this collection is negative.

Macairea schultesii *Wurdack* in Bot. Mus. Leafl., Harvard Univ. 18 (1958) 164.

COLOMBIA: Comisaría del Vaupés, río Kubiyú, Savannah of Kañendá.

"Bush, 2-3 feet. Flowers white". September 27, October 20, 1966. *Schultes, Raffauf et Soejarto 24285.*

Fresh material of this bush gives an alkaloid-negative result from a spot-test with Dragendorff reagent.

Miconia tomentosa (*L. C. Rich*). *D. Don* in Mem. Wern. Soc. 4 (1823) 316, 750.

COLOMBIA: Comisaría del Amazonas, Leticia. "Tree 25 feet. Fruits red".

August 29-31, 1966. *Schultes, Raffauf, Forero et Soejarto 24092.*

This collection is alkaloid-negative with a Dragendorff spot-test.

SAPOTACEAE

Chrysophyllum cainito *Linnaeus,* Sp. Pl. (1753) 192.

COLOMBIA: Comisaría del Amazonas, río Atacuarí. "Small tree, diameter 6 inches. Bark rough. Flower buds open pink. Latex only in leaves, white".

October 24, 1946. *Schultes et Black 8578.* Río Maritiparaná. "Small tree. Fruit brown. Latex white. Leaves rusty beneath". August 5, 1952.

Schultes et Cabrera 16414. Caño Aduche, near Araracuara, río Caquetá. "Fruit edible". February 27, 1982. *La Rotta 125.*

The Yukunas call this plant *ke-se-weé-ree;* in the Andoque language of the río Caquetá, the name is reported to be *so-da-di* (LA ROTTA, loc. cit.).

The fruit of numerous species is edible. The Yukunas, however, value the latex of the plant as a cure for what appears to be fungal infection of the crotch. The plant is commonly cultivated and is, consequently, easily available for treating this common complaint. The latex is applied over a period of several days to the infected area and allowed to dry.

Chrysophyllum sanguinolentum (*Pierre*) *Baehni* in Boissiera 11 (1965) 74.

COLOMBIA: Comisaría del Vaupés, río Apaporis, Jinogojé. "Enormous tree. Latex white. Flowers cauline, yellow-green". June 15, 1952. *Schultes et Cabrera 16738.*

The latex of *Chrysophyllum sanguinolentum* is said by the Makú Indians to be efficaceous in hastening the healing of open wounds. It is applied and allowed to dry, forming a kind of protective "skin". The Makuna name of the tree is *boo-á-tee-go;* the nomadic Makus of the río Piraparaná know it as *werg-han.*

Pouteria caimito (*R. et P.*) *Radlkofer* in Sitzb. Math-Phys. Akad. Muench. 12 (1882) 333.

COLOMBIA: Comisaría del Amazonas, río Caquetá, Los Monos. September 24, 1978. *Pabon 575.*

The Witoto Indians, who know this plant as *jifi-icona,* macerate and toast the young leaves and apply the material to wounds as a disinfectant.

Pouteria melinonii (*Engl.*) *Baehni* in Candollea 9 (1942) 200.

COLOMBIA: Comisaría del Amazonas, río Loretoyacu. October 1946. *Schultes et Black 8560.*

Amongst the Tikunas, a tea made from the bark is considered to be a strong purgative.

STYRACACEAE

Styrax tessmannii *Perkins* in Notizbl. 10 (1928) 459.

COLOMBIA: Comisaría del Amazonas, río Loretoyacu. March 1946. *Schultes 7144.*

Comisaría del Vaupés, Miraflores, río Vaupés. February 7, 1944. *Gutiérrez et Schultes 765.* Caño Guaracú, río Vaupés. February 21, 1944. *Gutiérrez et Schultes 868.*

The fragrant balsam from this tree is valued by medicine men of the río Vaupés in their magical practices. The Tikunas of the río Loretoyacu employ the resin to calm painful dental caries, packing the resin, softened by gentle heating, firmly into the decaying portion of the tooth.

LOGANIACEAE

Spigelia anthelmia *Linnaeus,* Sp. Pl. (1753) 149.

COLOMBIA: Comisaría del Amazonas, río Caquetá, caño Anduche. February 25, 1982. *La Rotta 113.*

An infusion of the root is used by the Andoque Indians as a tranquilizer for children. The Andoques call this plant *to-je-dé* (LA ROTTA: loc., cit.).

Strychnos guianensis *Thouning ex Didricksen* in Kjoeb. Vidensk. Meddel, (1854) 190.

COLOMBIA: Comisaría del Putumayo, río Putumayo. Nueva Granada. July 29, 1957. *Idrobo 2633.*

The Siona call this species *ya-hí-ae-o* and employ it in preparing one of their types of curares.

Strychnos mitscherlichii *Richard Schomburgk,* Fauna Fl. Brit. Gui. (1848) 950.

COLOMBIA: Comisaría del Putumayo, río Putumayo, Nueva Granada. June 29, 1957. *Idrobo 2632.*

According to the collector's notes, the bark of this vine is rasped to prepare a poison that will "kill all animals". It is very bitter and exudes a "red resin". The Siona Indians call the plant *ya-yú-ae-o* ("strong poison").

Strychnos panurensis *Sprague et Sandwith* in Kew Bull. (1927) 132.

COLOMBIA: Comisaría del Vaupés, Mitú. "Extensive vine on river's edge. Flowers fragrant, white. Fruit green". September 27, October 20, 1966. *Schultes et Raffauf 24166.*

A Dragendorff spot-test for alkaloids gives the following results on fresh material: fruit—strongly positive; bark and leaves—weakly positive.

POTALIACEAE

Potalia amara *Aublet,* Hist. Pl. Guian. Fr. (1775) 394, t. 151.

PERU: Departamento de Loreto, Provincia Maynas, río Yaguasyacu, affluent of río Ampiyacu, Brillo Nuevo and vicinity "shrub 2 m, tall in forest. name: *okaji kahpuu* (Bora)". April 12, 1977. *Plowman, Schultes et Tovar 6803* (Alpha Helix Amazon Expedition 1967-1977, Phase VII).

The Boras, who know this plant as *okají-kahpu,* chop fresh leaves in water and take it internally for snake bite or against any poisonous animal (raya, isula). It is said to calm the body and eliminate pain.

Notwithstanding the extensive medicinal use of *Potalia amara* throughout the Amazon, the chemistry of this genus is, according to Gibbs, "too poorly known to justify discussion" [Gibbs: *Chemotaxonomy of Flowering Plants* 3 (1974)].

GENTIANACEAE

Chelonanthus alatus (*Aubl.*) *Pulle,* Enum. Pl. Surinam (1906) 376.

BRAZIL: Estado do Amazonas, río Curicuriarí. March 12, 1973. *Damiao 2962.*

The local name of this herb is *tabaco bravo,* suggesting its possible use as a substitute for *Nicotiana tabacum.*

Chelonanthus chelonoides (L. f.) *Gilg* in Engler et Prantl, Natürl. Pflanzenfam. 4, 2 (1895) 98.

COLOMBIA: Comisaría del Vaupés, río Macaya, Cerro Chiribiquete. July 24, 1943. *Schultes 5614.*

The powdered leaves are reputed to be an excellent insect repellent amongst the Indians of the upper río Vaupés.

Chelonanthus uliginosus (*Griseb.*) *Gilg* in Engler et Prantl, Natürl. Pflanzenfam. 4, 2 (1895) 98.

COLOMBIA: Comisaría del Amazonas, río Igaraparaná. La Chorrera. June 4-10, 1942. *Schultes 3928.*

The root of this herb is valued in the form of a tea amongst the Witotos as a cure for stomach discomfort.

Coutoubea ramosa *Aublet,* Hist. Pl. Guian. Fr. 1 (1775) 74, t. 28.

COLOMBIA: Comisaría del Caquetá. La Tagua. January 20, 1965. *Melandro s. n.*

According to popular belief in the Caquetá, this plant "is poisonous and kills animals that eat it in the pastures".

Pagaea recurva (*Benth.*) *Bentham et Hooker* fil., Gen. Pl. 2 (1876) 814.

COLOMBIA: Comisaría del Amazonas, río Caquetá, Cerro de La Pedrera (Cupatí). April 1944. *Schultes 5863.*

This is a rare plant, the first report of the species from Colombia. The genus has only six species in tropical South America.

The natives of La Pedrera collect it on the historically important Cerro Cupatí for use in preparing a tea for the treatment of "debilitating forgetfulness" in the elderly (Altsheimer's disease?). The tea, prepared from the whole plant, is extremely bitter; it is called locally in Spanish simply *hierba amarga.*

Tachia guianensis *Aublet,* Hist. Pl. Guian. Fr. 1 (1775) 75, t. 29.

COLOMBIA: Comisaría del Amazonas, río Karaparaná, path between El Encanto and La Chorrera. May 31, June 2, 1942. *Schultes 3876.*

Comisaría del Vaupés, río Apaporis, Jinogojé. June 13, 1951. *Schultes et Cabrera 12476;* November 27, 1951, *Schultes et Cabrera 14670;* May 1952, *Schultes et Cabrera 19883.*

This is the first report of *Tachia guianensis* from Colombia.

The Witoto Indians of the río Karaparaná add the powdered leaves to the coca preparation "to make it taste better". In the río Apaporis, the natives state that there is no better remedy for "sore stomach" than a tea of the root of *Tachia guianensis.*

APOYCYNACEAE

Bonafousia tetrastachya (*HBK*). *Markgraf* in Pulle, Fl. Surinam 4 (1937) 454.

COLOMBIA: Comisaría del Amazonas, río Loretoyacu. October 1945. *Schultes 6594*. Same locality. September 1946. *Schultes et Black 8346*.

Month of río Loretoyacu. October 8, 1961. *Idrobo 4692*. Same locality. August 19, 1964. *Fernández-Pérez 6867*.

Locally known as *sanango* and *aje de monte*, this bush has numerous medicinal applications in the region, notwithstanding the caustic character of its latex.

The collection *Fernández-Pérez 6867* is very strongly alkaloid-positive with a Dragendorff spot-test on fresh leaf material.

Malouetia furfuracea *Bentham ex Mueller-Argoviensis* in Martius, Fl. Bras. 6, pt. 1 (1860) 93.

COLOMBIA: Comisaría del Vaupés, Mitú. "Small tree in water at river's edge. Flowers fhite. Latex white, abundant". September 27, October 20, 1966. *Schultes et Raffauf 24167*.

A Dragendorff reagent spot-test on fresh material grave the following results: bark strongly alkaloid-positive: leaves weakly positive.

Malouetia tamaquarina *A. De Candolle* in De Candolle, Prodr. 8 (1844) 378.

COLOMBIA: Comisaría del Amazonas, río Loretoyacu. September-November, 1944. *Schultes 6034; 6083; 6112*. Same locality. August 19, 1964. *Fernández-Pérez 6865*.

Comisaría del Vaupés, río Kuduyarí, Yapobodá. October 1951. *Schultes et Cabrera 14170*. Río Vaupés, near Mitú. November 13, 1952. *Schultes et Cabrera 18417*.

The Indians in both of these Comisarías consider *Malouetia tamaquariana* to be poisonous. The collection *Fernández Pérez 6865* is very strongly alkaloid-positive when fresh material is spot-tested with Dragendorff reagent.

The common name of this tree in the río Loretoyacu region is *cuchara-caspi*. In the Vaupés, the Kubeos call it *yau-wa-haú-ka-kee*. The Puinaves know it as *pom-ká*.

For a discussion of the curious belief in the Leticia area of the toxicity of this species (*Schultes 6034, 6083, 6112*) to dogs through the meat or bones of the pajuil bird (*Nothocrax urumutum*) see SCHULTES: Bot. Mus. Leafl., Harvard Univ. 19 (1960) 123-124.

Mesechites trifida (*Jacq.*) *Mueller-Argoviensis* in Martius, Fl. Bras. 6, pt. 1 (1860) 151.

COLOMBIA: Comisaría del Vaupés, río Apaporis, Raudal de Jirijirimo. February 27, 1952. *Schultes et Cabrera 15687.*

The Makunas, who call this plant *mee-seé-man-gaw,* utilize the latex to cauterize and hasten the healing of recalcitrant sores and ulcers. The flowers are dried and stored for use in a tea when children suffer from "susto", a psychological reaction from a frightening experience.

ASCLEPIADACEAE

Matelea palustris *Aublet,* Hist. Pl. Guian. Fr. (1775) 278, t. 109, f. 1.

ECUADOR: Provincia Pastaza, río Chicó, village of río Chicó and vicinity. August 1979. *Shemluck et Ness 190.*

The leaves are cooked and eaten and are said to turn the teeth red. There is apparently no utilitarian purpose involved in eating the leaves.

The chemistry of this genus is apparently unknown.

SOLANACEAE

Cestrum ochraceum *Francey* var. **macrophyllum** *Francey* in Candollea 6 (1935) 344.

COLOMBIA: Comisaría del Putumayo, Sibundoy. May 29, 1946. *Schultes et Villarreal 7658.* Same locality. April 12, 1963. *Bristol 750.* Same locality. "Tree 5 m. Strong narcotic odour. Corolla cream to purplish brown. Fruit black, 8 mm long". November 11, 1968. *Plowman 2006.*

In Sibundoy, the natives state that the whole plant is poisonous. The vernacular name is *sauco blanco.*

Solanum apaporanum *R. E. Schultes* in Bot. Mus. Leafl., Harvard Univ. 13 (1949) 292.

COLOMBIA: Comisaría del Vaupés, río Vaupés, Mitú, near mouth of río Kuduyarí. "Vine with spines. Flowers white. Fruit orange". October 6, 1966. *Schultes, Raffauf et Soejarto 24300.*

With a Dragendorff spot-test, this vine is alkaloid-positive.

Solanum jamaicense *Miller,* Gard. Dict., ed 8, *Solanum* No. 17 (1768).

COLOMBIA: Comisaría del Amazonas, Leticia. "Shrub. Flowers white". August 29-31, 1966. *Schultes et Raffauf 24098.*

A Dragendorff spot-test on the leaves of this plant gives a doubtfully positive alkaloid reaction.

Solanum mammosum *Linnaeus,* Sp. Pl. (1753) 187.

COLOMBIA: Comisaría del Amazonas, río Karaparaná, El Encanto. May 22-28, 1942. *Schultes 3808.*

Comisaría del Putumayo, río Putumayo, Puerto Ospina. March 23-25, 1942. *Schultes 3450.* Río Sucumbíos, Conejo. "Flowers purple; anthers yellow". April 2-5, 1942. *Schultes 3651.*

This plant is cultivated widely in the Putumayo where it is called *tetilla* in Spanish, *koo-koó-na* in Kofán. The bright yellow or orange fruits are placed in the rafters of the houses to alienate cockroaches.

BIGNONIACEAE

Distictella pulverulenta *Sandwith* in Brittonia 3 (1938) 91.

COLOMBIA: Comisaría del Amazonas, río Popeyacá. "Vine. Flowers purplish, white near base; calyx purple". February 22-26, 1952. *Schultes et Cabrera 15545.*

The Makuna Indians burn the leaves and mix the ashes with powdered coca (*Erythroxylon coca* var. *ipadu*). The Makuna name *ka-hee-ee-ko-mee-seé-ma* means "vine for ashes of coca".

GESNERIACEAE

Alloplectus semicordatus *Poeppig et Endlicher,* Nov. Gen. et Sp. 3 (1845) 5.

COLOMBIA: Comisaría del Amazonas, río Karaparaná, El Encanto. "Bracts bright red. Flowers yellow". May 22-28, 1942. *Schultes 3855.* Río Caquetá, La Pedrera. "Epiphyte. Bracts red". April 1944. *Schultes 5872.* Río Loretoyacu. *Glenboski 1.*

Comisaría del Vaupés, Cerro Chiribiquete. May 15-16, 1943. *Schultes 5490.*

The Tikunas in the río Loretoyacu crush the leaves and rub the juice on rheumatic joints to ease the pain. In La Pedrera, the natives drink an infusion of the leaves to "purify the blood".

Besleria ignea *Fritsch* in Notitzbl. 11 (1934) 966.

COLOMBIA: Comisaría del Amazonas, río Caquetá, La Pedrera. "Flowers brick-red". April 1944. *Schultes 5885.*

The natives of La Pedrera consider that the leaves of this epiphyte when ingested are a strong purgative.

Besleria leucostoma (*Hook.*) *Hanstein* in Linnaea 34 (1865-66) 326.

COLOMBIA: Comisaría del Amazonas, río Loretoyacu. *Glenboski 249.*

The common name of this epiphyte indicates its use amongst the Tikunas: mata de conga; leaves are crushed and applied as a plaster to the painful bites of the conga ant (GLENBOSKI, loc. cit.).

Codonanthe uleana *Fritsch* in Karsten et Schenck, Vegetationsbilder 3 (1905) sub tt. 3-4.

COLOMBIA: Comisaría del Amazonas, río Boiauassú. "Flower pink. Epiphyte". November 1945. *Schultes 6861.*

A plaster of the leaves of *Codonanthe uleana* is applied to recalcitrant wounds and infections by the Tikunas who know this epiphyte as *ka-ná-te-pa.*

It is interesting that the Waika Indians of Venezuela employ the root of *Codonanthe calcarata* to "cure wounds" (VON REIS ET LIPP, loc. cit.).

Columnea villosissima *Mansfield* in Fedde Repert. 38 (1935) 26.

COLOMBIA: Comisaría del Putumayo, Mocoa. December 3-7, 1942. *Schultes et Smith 2063.*

A plaster of the fleshy leaves of *Columnea villosissima* are valued by the residents of Mocoa as a "sure cure" for the bite of the deadly bushmaster snake; the leaves are crushed and applied to the area of the bite.

ACANTHACEAE

Aphelandra pilosa *Leonard,* Contrib. U. S. Nat. Herb. 31 (1953) 200, t. 74.

COLOMBIA: Comisaría del Vaupés, río Kuduyarí, Yapobodá. October 4-6, 1951. *Schultes et Cabrera 14268.* Río Vaupés, Circasia. November 1951.

Schultes et Cabrera 19633.

The inhabitants of the Vaupés make a refreshing, stimulating tea from the leaves of *Aphelandra pilosa.*

Justicia chlorostachya *Leonard* in Contrib. U. S. Nat. Herb. 31 (1958) 498.

COLOMBIA: Comisaría del Vaupés, río Apaporis, Soratama. June 20, 1951. *Schultes et Cabrera 12703.*

Amongst the Taiwanos of the río Kananarí, the aromatic leaves of *Justicia chlorostachya* are valued as an insect repellent. The powdered leaves are dusted on the crotch to treat rashes apparently of fungal origin.

Justicia comata *(L.) Lamarck,* Encycl. 3 (1789) 632.

COLOMBIA: Comisaría del Amazonas, río Amacayacu. "Flowers white, purplish spotted". September 1946. *Schultes 8248.*

The leaves of *Justicia comata* are dried, powdered and employed amongst the Tikunas as an insecticide or insect repellent.

Justicia pelianthia *Leonard* in Contrib. U. S. Nat. Herb. 31 (1958) 591, t. 220.

COLOMBIA: Comisaría del Putumayo, río Guamués, San Antonio. December 6, 1968. *Plowman 2109.*

This plant is known in the Putumayo as *cola de monte.* It is reputedly "medicinal", but no specific use could be elucidated.

Justicia stenophylla *Urban et Britton* in Urban, Symb. Ant. 7 (1912) 389.

COLOMBIA: Comisaría del Vaupés, río Pacoa. February 7, 1952. *Schultes et Cabrera 15244.*

The Puinave name for this plant is *ya-ko-yoó.*

Justicia sp.

COLOMBIA: Comisaría del Guainía, alto río Inírida. October 11, 1978. *Espina 313.*

According to the collector, this species is known as *flor de la culebra,* suggesting that it may be employed in treating snake-bites.

Mendoncia pedunculata *Leonard* in Contrib. U. S. Nat. Herb. 31 (1951) 16.

COLOMBIA: Comisaría del Vaupés, río Vaupés, Miraflores, February 12, 1944. *Gutiérrez et Schultes 789.*

The root of this plant, common in the uppermost Vaupés, is said to have been a favourite fish poison in former years amongst the natives of the upper río Vaupés.

Sanchezia pennellii *Leonard* in Journ. Wash. Acad. Sci. 16 (1926) (488).

COLOMBIA: Comisaría del Amazonas, río Amazonas, Leticia. September-November, 1944. *Schultes 6164.*

The leaves of *Sanchezia Pennellii* are reputed in Leticia to have excellent hemostatic properties.

It is perhaps significant that another species of *Sanchezia S. thinophila* is employed in the same region in the form of a wash to bathe the heads of girls who undergo the ritual adolescent initiating ceremony in which the hair is forcefully pulled out, leading to profuse bleeding [SCHULTES: Bot. Mus. Leafl., Harvard Univ. 26 (1978) 272].

Sanchezia thinophila *Leonard ex R. E. Schultes* in Bot. Leafl. Harvard Univ. 16 (1953) 94.

COLOMBIA: Comisaría del Amazonas, río Loretoyacu. October 20-30, 1945.

Schultes 6607. Puerto Nariño, near mouth of río Loretoyacu. September 13-15, 1966. *Schultes, Raffauf et Soejarto 24121.*

The Tikunas of the río Loretoyacu prepare a decoction of the inflorescences of *Sanchezia thinophila* to be used as a wash to bathe the heads of girls who undergo the tribal adolescent initiatory ceremony characteristic of these Indians. The hair is forcefully pulled out, leading to profuse bleeding.

It is possible that this use is related to a kind of "Doctrine of Signature" connection with the large, showy, blood-red bracts of the plant, although the natives insist that the plant has strong hemostatic properties.

Little is known of the chemistry of *Sanchezia*. The leaves of *Schultes, Raffauf et Soejarto 24121* prove to be alkaloid-negative with a Dragendorff reagent spot-test on fresh material.

RUBIACEAE

Insertia hypoleuca *Bentham* in Hooker, Journ. Bot. 3 (1841) 220.

COLOMBIA: Comisaría del Amazonas, Leticia. August 29-31, 1966. *Schultes, Raffauf, Forero et Soejarto 24002; 24041.*

Both of these collections give positive alkaloid reactions with Dragendorff spot-tests. The local inhabitants report that a decoction of the leaves is rubbed on the chest to relieve pains.

Palicourea condensata *Standley,* Field Mus. Nat. Hist. Bot. Publ. 8 (1930) 224.

COLOMBIA: Comisaría del Amazonas, Leticia. "Tree 30 feet. Fruit green-black. Receptacle and axes purplish". August 29-31, 1966. *Schultes, Raffauf, Forero et Soejarto 24020.*

An alkaloid-positive reading is given by Dragendorff spot-test on the leaves of this plant.

Palicourea crocea (*Sw.*) *Roemer et Schultes,* Syst. Veg. 5 (1819) 193.

COLOMBIA: Comisaría del Amazonas, Leticia. "Flowers bright yellow; axes orange. Fruit green. Scandent shrub". August 29-31, 1966. *Schultes, Raffauf, Forero et Soejarto 24023.*

The leaves of this shrub give an alkaloid-positive spot-test with Dragendorff reagent on fresh material.

Palicourea guianensis *Aublet,* Hist. Pl. Guian. Fr. 1 (1775) 173, t. 66.

COLOMBIA: Comisaría del Vaupés, Mitú. "Tree 25 feet. Flowers deep yellow; axes pale yellow". September 27, October 20, 1966. *Schultes et Raffauf 24195.*

Fresh leaf and stem material are strongly alkaloid-positive with a Dragendorff spot-test on fresh material.

Palicourea macrophylla (HBK) *Standley* in Field Mus. Nat. Hist. Bot. Publ. 7 (1931) 321.

COLOMBIA: Comisaría del Amazonas, Leticia. "Tree 30 feet. Flowers violet to purple, very fleshy. On secondary growth". August 29-31, 1966. *Schultes, Raffauf, Forero et Soejarto 24011.*

Palicourea macrophylla is alkaloid-positive with a Dragendorff spot-test on fresh material.

Warscewiczia coccinea (*Vahl*) *Klotzsch* in Monatsb. Akad. Berlin (1853) 497.

COLOMBIA: Comisaría del Amazonas, Leticia. "Small tree 15 feet. Flowers yellow. Bracts red". August 29-31, 1966. *Schultes, Raffauf, Forero et Soejarto 24096.*

This common and beautiful rubiaceous plant gives an alkaloid-negative response to a Dragendorff spot-test.

CAPRIFOLIACEAE

Sambucus mexicana *Presl ex De Candolle,* Prodr. 4 (1830) 322.

COLOMBIA: Comisaría del Amazonas, río Loretoyacu. September 2, 1972. *Glenboski 46.*

This cultivated plant is employed medicinally by the local people in the río Loretoyacu: the leaves are boiled for half an hour, and the liquid is administered warm thrice daily in one-cup doses to treat measles and to "cool fevers".

The local name of this plant in Spanish is *sauco* or *sabuguera.*